

CLAIMS:

1. An image processing apparatus, comprising:

profile data calculating means for receiving image data
obtained by imaging an object to calculate pieces of profile
5 data corresponding to change of brightness among a plurality
of pixels;

binarizing means for binarizing each of the pieces of
profile data obtained by said profile data calculating means;

convex closure processing means for performing convex
10 closure processing on the pieces of profile data binarized
by said binarizing means to extract an outermost profile;
and

blackening processing means for performing blackening
processing on the received image data to reduce brightness
15 of pixels in an area out of the outermost profile extracted
by said convex closure processing means.

2. An image processing apparatus according to claim 1,
wherein said profile data calculating means calculates the
pieces of profile data by using one of a Sobel filter and
20 a Prewitt filter.

3. An image processing apparatus according to claim 1,
wherein said convex closure processing means obtains a
straight line which connects positions of two pixels included
in the profile data binarized by said binarizing means to
25 extract the outermost profile.

4. An image processing apparatus according to claim 1,
wherein said convex closure processing means obtains a curved

line which connects positions of at least three pixels included in the profile data binarized by said binarizing means to extract the outermost profile.

5. An image processing apparatus according to claim 1,
5 wherein said convex closure processing means obtains a straight line which goes through among positions of at least three pixels included in the profile data binarized by said binarizing means to extract the outermost profile.

6. An image processing method, comprising the steps of:
10 (a) receiving image data obtained by imaging an object to calculate pieces of profile data corresponding to change of brightness among a plurality of pixels;

(b) binarizing each of the pieces of profile data obtained at step (a);

15 (c) performing convex closure processing on the pieces of profile data binarized at step (b) to extract an outermost profile; and

(d) performing blackening processing on the received image data to reduce brightness of pixels in an area out of
20 the outermost profile extracted at step (c).